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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,423	04/07/2000	GING HAUW KHOE	GRIHACP28AU	6300 21
20210	7590	11/19/2003	EXAMINER	
DAVIS & BUJOLD, P.L.L.C. FOURTH FLOOR 500 N. COMMERCIAL STREET MANCHESTER, NH 03101-1151			CHORBaji, MONZER R	
		ART UNIT	PAPER NUMBER	
		1744		

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/463,423	KHOE ET AL.
	<b>Examiner</b> MONZER R CHORBAJI	<b>Art Unit</b> 1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 06 August 2003.

2a) This action is FINAL.                  2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 10-29 is/are pending in the application.

  4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 10-29 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 07 March 2000 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
  1. Certified copies of the priority documents have been received.  
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

This non-final office action is in response to the amendment received on 08/06/2003

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 26, line 6; applicant uses the phrase "without use of any chelate". The original disclosure does not include such a limitation.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 10-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Khoe (WO 95/11195).

With respect to claims 10, 18, and 26, Khoe discloses a method for oxidizing various types of organic species (abstract, lines 1-2 and page 6, lines 7-27) such as

arsenic and iron. The method of Khoe is not only limited to oxidizing arsenic or iron, the method is expected to oxidize any type of inorganic species present in an aqueous solution. The method includes the following steps: supplying an oxidizable source of sulfur (page 6, line 22) and oxygen (page 6, lines 31-32) to the solution and irradiating the solution with UV light (page 6, lines 18-19) in order to reduce a toxicity of the inorganic species (abstract, lines 3-4). In addition, Khoe forms an aqueous solution, which includes industrial waste water (page 3, lines 18-26).

With respect to claims 11, 19, and 27, Khoe teaches that since the source of sulfur is in an aqueous solution, then it is inherent that sulfur will be in various ionic forms (page 6, lines 10-11).

With respect to claims 12-13, 20-21, and 28, Khoe teaches that inorganic species such as arsenic or iron are in trace quantities (page 16, lines 2-5) of drinking water such that the method of Khoe is not only limited to oxidizing arsenic or iron, the method is expected to oxidize any type of inorganic species present in an aqueous.

With respect to claims 14-16, 22-24, and 29, Khoe discloses the following: the wavelength of UV light is less than 300nm (page 8, lines 11-12), dissolved oxygen is derived from air (page 20, lines 28-30) and the dissolved oxygen is derived from a gas source with an oxygen partial pressure of about 0.2 atmospheres (page 21, lines 1-4).

With regard to claims 17 and 25, Khoe discloses the aqueous solution is industrial waste water (page 3, lines 18-26).

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 10-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khoe (WO 95/11195).

With respect to claims 10, 18, and 26, Khoe discloses a method for oxidizing various types of inorganic species (abstract, lines 1-2 and page 6, lines 7-27) such as

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arsenic and iron. The method of Khoe is not only limited to oxidizing arsenic or iron, the method is intrinsically capable of oxidizing any type of inorganic species present in an aqueous solution such that iron, arsenic manganese, nickel or any inorganic species can be oxidized by the Khoe method. The method includes the following steps: supplying an oxidizable source of sulfur (page 6, line 22) and oxygen (page 6, lines 31-32) to the solution and irradiating the solution with UV light (page 6, lines 18-19) in order to reduce a toxicity of the inorganic species (abstract, lines 3-4). In addition, Khoe forms an aqueous solution, which includes industrial waste water (page 3, lines 18-26).

With respect to claims 11, 19, and 27, Khoe teaches that since the source of sulfur is in an aqueous solution, then it is intrinsic that sulfur will be in various ionic forms (page 6, lines 10-11).

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With regard to claims 17 and 25, Khoe discloses the aqueous solution is industrial waste water (page 3, lines 18-26).

***Response to Arguments***

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9. Applicant's arguments filed 08/06/2003 have been fully considered but they are not persuasive.

On page 4 of the response, applicant argues, "WO 95/11195 does not in any way teach, suggest or disclose sulphur as an oxidizing source or photoabsorber". The WO 95/11195 teaches on page 6, lines 1013 and line 22 that the substance, which is Sulphur, is capable of being oxidized. That means that sulphur is an oxidizable source as disclosed in claims 10, 18, and 26.

On page 4 of the response, applicant argues, "In fact, WO 95/11195 very clearly teaches, suggests and discloses that the photoabsorber is a dissolved cationic metal species such as Fe(II) or Fe(III), Cu<sup>2+</sup>, etc". The limitation "photoabsorber" is not recited in the claims.

On page 4 of the response, applicant argues, " Further, Frame et al. '581 relates to oxidative removal of cyanide from aqueous streams abetted by UV radiation, however, this oxidation with UV irradiation occurs only when certain metal chelates are used as catalysts". The Frame et al reference was only applied to show that cyanide is a known pollutant that needs to be removed from aqueous solutions. In addition, the Frame et al reference teaches known methods of removing cyanide where metal chelates were not used. Furthermore, the limitation "without use of any chelate" is a new matter since the original disclosure does not recite such a limitation.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R CHORBAJI whose telephone number is (703) 305-3605. The examiner can normally be reached on M-F 8:30-5:00.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBERT J WARDEN can be reached on (703) 308-2920. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 305-7719 for After Final communications.

12. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Monzer R. Chorbaji *MRC*  
Patent Examiner  
AU 1744  
November 17, 2003

*Robert J. Warden, Jr.*  
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